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60. (New) The device of Claim 59, further comprising at least one outlet basin positioned at a second end of said pathway.

61. (New) The device of Claim 60, further comprising at least one reagent supplier positioned between said inlet basin and said outlet basin.

62. (New) The device of Claim 61, wherein said device comprises a plurality of said pathways.

63. (New) The device of Claim 57, wherein said microfluidic substrate consists essentially of silicon.

64. (New) The device of Claim 57, further comprising a detector for measuring a physicochemical property of said biological sample.

65. (New) The device of Claim 57, wherein said thermal cycling zone comprises a metal bar in fluid communication with a plurality of water sources containing water at said at least two temperatures, said metal bar being in thermal communication with said at least a portion of said sample pathway.

66. (New) The device of Claim 57, wherein said device comprises a microfluidic substrate comprising at least one temperature regulated zone which is capable of cycling between at least two temperatures, and at least one constant temperature zone.

67. (New) The device of Claim 57, wherein said device comprises a microfluidic substrate comprising several temperature regulated zones capable of cycling between at least two temperatures.

68. (New) The device of Claim 57, wherein said flowing sample goes through a plurality of temperature cycles as it travels through the temperature regulated zone.

69. (New) The device of Claim 62, wherein said pathways comprise channels arranged in parallel, and wherein said channels are fed in series with different samples separated from each other by separators.

70. (New) The device of Claim 69 wherein the portion of the channel which crosses the temperature regulated zone is rectilinear.

Remarks